

REMARKS

I. Introductory Comments

Claims 1-82 and 84 are pending. Claims 1, 2, 11, 18, 20, 22, 26, 28, 29, 38, 45, 47, 49, 53, 55, 56, 65, 72, 74, 76, 80, 82, and 84 are independent claims. No claims have been amended or canceled in this paper, therefore claims 1-82 and 84 remain pending. In the Final Office Action, the Examiner rejected claims 1-82 and 84 under 35 U.S.C. § 102(e) as allegedly anticipated by U.S. Patent Publication No. 2004/0093521 (Hamadeh '521).

In view of the following arguments, all claims are believed to be in condition for allowance over the references of record. Therefore, this response is believed to be a complete response to the Final Office Action.¹ Further, for any instances in which the Examiner took Official Notice in the Office Action, Applicant expressly does not acquiesce to the taking of Official Notice, and respectfully requests that the Examiner provide an affidavit to support the Official Notice taken in the next Office Action, as required by 37 CFR 1.104(d)(2) and MPEP § 2144.03.

II. Hamadeh '521

The Examiner rejected claims 1-82 and 84 under 35 U.S.C. § 102(e) based on Hamadeh '521. The present application claims benefit under 35 U.S.C. § 119(e) to United States provisional patent application serial number 60/436,778, filed on December 27, 2002. Hamadeh '521 claims benefit to provisional patent application serial number 60/395,838 (Hamadeh '838), filed on July 12, 2002. The Examiner stated that under 35 U.S.C. § 102(e), "the effective filing date of [Hamadeh '521] is July 12, 2002 which is prior to the filing date of present application." (Final Office Action, page 2.)

¹. As Applicant's remarks with respect to the Examiner's rejections are sufficient to overcome these rejections, Applicant's silence as to assertions by the Examiner in the Office Action or certain requirements that may be applicable to such rejections (e.g., whether a reference constitutes prior art, motivation to combine references, assertions as to dependent claims, etc.) is not a concession by Applicant that such assertions are accurate or such requirements have been met, and Applicant reserves the right to analyze and dispute such assertions/requirements in the future.

However, as discussed in MPEP § 2136.03, Hamadeh '521 can only be used "if the provisional application(s) properly supports the subject matter relied upon to make the rejection in compliance with 35 U.S.C. 112, first paragraph." (MPEP § 2136.03.) Thus, Hamadeh '521 can only be used to the extent that Hamadeh '838, the provisional application, supports the subject matter relied upon to form the section 102 rejections. As set forth below, a number of the rejections are unsupported by the '838 provisional application. Hamadeh '521 fails to teach or suggest numerous recitations found in Applicant's claims, even where Hamadeh '838 supports the disclosure of Hamadeh '521.

The Examiner alleged that paragraphs 125-148 of Hamadeh '521 anticipate all 23 of Applicant's independent claims. The Examiner did not provide any additional guidance regarding exactly how the cited portion of Hamadeh '521 anticipates any of the recitations of Applicant's claims. However, as discussed below, Hamadeh '521 fails to teach or suggest the recitations found in Applicant's claims.

III. Independent Claim 1 Is Patentable Over Hamadeh '521.

"supplementing the identification field of the IP header with at least one bit from another field of the IP header."

Claim 1 recites in part "supplementing the identification field of the IP header with at least one bit from another field of the IP header." The Examiner alleged that Hamadeh '521 teaches the identified recitation in paragraphs 125-148. (Final Office Action, page 3.) However, neither Hamadeh '521 nor the '838 provisional application relied upon by Hamadeh '521 teaches or suggests the identified recitations.

Hamadeh is directed to "Border Router Packet Marking (BRPM)" where "only border routers mark packets" by "divid[ing] a border router's IP address into many overlapping fragments . . . [and] writ[ing] into every packet's header a selected fragment and its ID." (Hamadeh '838: page 6, lines 2, 9-10, and 21-23.) Further, Hamadeh '521 states that the disclosure is directed to "tracing of packet flows back to trusted point" by "mark[ing] packets with partial address information," where "the markings comprise fragments of IP addresses of the border devices." (Hamadeh '521: Abstract.) Hamadeh further states that "[t]he solution is

based on marking packets with partial information *reflecting a border device's address.*" (Hamadeh '521: Summary, ¶ 26, emphasis added.) Hamadeh also states that "[b]y combining a small number of marked packets, the victims are able to reconstruct the IP address of the border router." (Hamadeh '838: page 2, lines 31-32.) Thus, Hamadeh teaches marking packets with parts of a border router's IP address - data that is external to the packet. However, claim 1 recites using "at least one bit from another field of *the IP header*," data that is internal to the packet itself.

In the cited portions, e.g. paragraphs 125-148, Hamadeh '521 teaches overwriting certain fields of an IP packet with a marking fragment, where the marking fragment is part of the IP address of the border router. For example, Hamadeh states that the "[t]he Identification field and the two unused bits of the TOS field can be 'overloaded', i.e. can be overwritten by the marking fragment and its ID." (Hamadeh '521: ¶ 125.) Hamadeh explains that "[a] fragment could be a complete address [of the border router], but typically is a smaller portion of the address. Essentially, the marking device [e.g. border router] breaks its own address into a number of fragments." (Hamadeh '521: Summary, ¶ 28.)

In paragraph 128, Hamadeh discusses a simulation using the disclosed approach where "[b]order router IP addresses were generated at random" and "[e]ach IP address was split into 14-bit fragments." (Hamadeh '521: ¶ 128.) Hamadeh further states that "[a]fter running the simulation, all border router IP addresses were successfully reconstructed." (Id.) Thus, Hamadeh teaches marking packets by inserting a border router's IP address into the packets, as opposed to "supplementing the identification field of the IP header with at least one bit from another field of the IP header," as recited in claim 1.

Accordingly, the Section 102 rejection of independent claim 1 should be reconsidered and withdrawn.

IV. Independent Claims 28, 55, 82, and 84 Are Patentable Over Hamadeh.

The Examiner alleged that Hamadeh '521 anticipates independent claims 28, 55, 82, and 84 in paragraphs 125-148. (Final Office Action, pages 6, 9, 12, and 13.) Although differing in scope, independent claims 28, 55, 82, and 84 are patentable over Hamadeh for at least the

reasons discussed above with respect to claim 1. Independent claim 28 recites in part “supplementing the identification field with at least one bit from another field of the IP header,” and independent claims 55, 82, and 84 each recites in part “supplementing the identification field of the IP header of the IP datagram with at least one bit from another field of the IP header.” Neither Hamadeh nor the ‘838 provisional relied upon by Hamadeh teaches or suggests the identified recitations.

As discussed above with respect to claim 1, Hamadeh teaches overwriting certain fields of an IP packet with a marking fragment, where the marking fragment is part of the IP address of the border router. Hamadeh states that “[a] fragment could be a complete address [of the border router], but typically is a smaller portion of the address. Essentially, the marking device [e.g. border router] breaks its own address into a number of fragments.” (Hamadeh ‘521: Summary, ¶ 28.) Thus, Hamadeh teaches marking packets by inserting a border router’s IP address into the packets, as opposed to “supplementing the identification field with at least one bit from another field of the IP header,” as recited, by way of example, in claim 28.

Accordingly, the Section 102 rejections of independent claims 28, 55, 82, and 84 should be reconsidered and withdrawn.

V. Independent Claim 2 Is Patentable Over Hamadeh.

- “a. determining identification information having a length greater than 16 bits associated with data to be sent in the IP datagram;*
- b. inserting at least one bit of the identification information into the identification field of the header; and*
- c. inserting remaining bits of the identification information into at least one other field of the header.”*

Independent claim 2 includes the above recitations. Again, the Examiner alleged that Hamadeh ‘521 anticipates claim 2 in paragraphs 125-148. (Final Office Action, pages 3-4.) However, Hamadeh fails to teach or suggest the recitations found in claim 2. Hamadeh states that “[t]he solution is based on marking packets with *partial information reflecting a border device’s address*.” (Hamadeh ‘521: Summary, ¶ 26, emphasis added.) Thus, Hamadeh teaches overwriting certain fields of an IP packet with a portion or fragment representing part of the IP

address of a border router. Thus, Hamadeh fails to teach or suggest “determining identification information . . . associated with data to be sent in the IP datagram” because Hamadeh teaches simply using the IP address of the border router. In addition, Hamadeh fails to teach or suggest “inserting remaining bits of the identification information into at least one other field of the header” as Hamadeh teaches fragmenting the border router’s IP address, and inserting the fragmented address into multiple packets.

Accordingly, the Section 102 rejection of independent claim 2, as well as the rejections of claims 3-10 depending therefrom, should be reconsidered and withdrawn.

VI. Independent Claims 29 and 56 Are Patentable Over Hamadeh.

The Examiner alleged that Hamadeh anticipates independent claims 29 and 56 in paragraphs 125-148. (Final Office Action, pages 6 and 16-17.) Although differing in scope, independent claims 29 and 56 are patentable over Hamadeh for at least the reasons discussed above with respect to claim 2. Independent claims 29 and 56 each recites in part “determining identification information having a length greater than 16 bits associated with data to be sent in the IP datagram,” “inserting at least one bit of the identification information into an identification field of the header for the IP datagram,” and “inserting remaining bits of the identification information into at least one field of the header of the IP datagram other than the identification field.”

As discussed above with respect to claim 2, Hamadeh states that “[t]he solution is based on marking packets with *partial information reflecting a border device’s address*.” (Hamadeh ‘521: Summary, ¶ 26, emphasis added.) Thus, Hamadeh teaches overwriting certain fields of an IP packet with a portion or fragment representing part of the IP address of a border router. Thus, Hamadeh fails to teach or suggest “determining identification information . . . associated with data to be sent in the IP datagram” because Hamadeh teaches simply using the IP address of the border router. In addition, Hamadeh fails to teach or suggest “inserting remaining bits of the identification information into at least one other field of the header” as Hamadeh teaches fragmenting the border router’s IP address, and inserting the fragmented address into multiple packets.

Accordingly, the Section 102 rejections of independent claims 29 and 56, as well as the rejections of claims 30-37 and 57-64 depending therefrom, should be reconsidered and withdrawn.

VII. Independent Claim 11 Is Patentable Over Hamadeh.

- “a. determining a special value based on a secret shared with a destination node; and*
- b. inserting at least a part of the special value into identification information carried by the header for the IP datagram, wherein a first portion of the identification information is included in the an identification field of the header and a second portion of the identification information is included in at least one other field of the header.”*

Claim 11 recites in part “determining a special value based on a secret shared with a destination node.” Again, the Examiner alleged that Hamadeh teaches the identified recitation in paragraphs 125-148, but failed to provide any specific guidance regarding precisely how or where Hamadeh teaches the identified recitation. (Final Office Action, page 4.) Further, Hamadeh makes no mention of “determining a special value based on a secret shared with a destination node,” as recited in independent claim 11. As previously discussed, Hamadeh teaches inserting parts or fragments of a border router’s IP address into packets.

The Examiner failed to show how or where Hamadeh teaches the identified recitations. Further, because Hamadeh fails to teach or suggest a “special value based on a secret shared with a destination node,” Hamadeh also fails to teach or suggest “inserting at least a part of the special value into identification information carried by the header for the IP datagram,” as recited in claim 11.

Accordingly, the Section 102 rejection of independent claim 11, as well as the rejections of claims 12-17 depending therefrom, should be reconsidered and withdrawn.

VIII. Independent Claims 38 and 65 Are Patentable Over Hamadeh.

The Examiner alleged that Hamadeh anticipates independent claims 38 and 65 in paragraphs 125-148. (Final Office Action, pages 7 and 10.) Although differing in scope, independent claims 38 and 65 are patentable over Hamadeh for at least the reasons discussed

above with respect to claim 11. Independent claims 38 and 65 each recites in part “determining a special value based on a secret shared with a destination node,” and “inserting at least a part of the special value into identification information carried by the header for the IP datagram, wherein a first portion of the identification information is included in an identification field and a second portion of the identification information is included in at least one other field of the header of the IP datagram.” As discussed above with respect to claim 11, Hamadeh makes no mention of “determining a special value based on a secret shared with a destination node,” or “inserting at least a part of the special value into identification information carried by the header for the IP datagram,” as recited in independent claims 38 and 65.

Accordingly, the Section 102 rejections of independent claims 38 and 65, as well as the rejections of claims 39-44 and 66-71 depending therefrom, should be reconsidered and withdrawn.

IX. Independent Claim 18 Is Patentable Over Hamadeh.

“A method for facilitating fragmentation-free transmissions between two IPsec nodes implementing IPsec protocol.”

Claim 18 is directed to “[a] method for facilitating fragmentation-free transmissions between two IPsec nodes implementing IPsec protocol.” Again, the Examiner alleged that Hamadeh teaches the identified recitation in paragraphs 125-148, but failed to provide any specific guidance regarding precisely how or where Hamadeh teaches the recitations of claim 18. (Final Office Action, page 4.)

With respect to IPsec, Hamadeh clearly states that “current implementations of BRPM [border router packet marking] and all other packet marking schemes, is currently incompatible with parts of IPsec.” (Hamadeh ‘838: page 13, lines 4-5.) Further, Hamadeh states that “[o]verloading the Identification field would currently be incompatible with parts of IPsec.” (Hamadeh ‘521: ¶ 136.) Thus, Hamadeh clearly teaches away from using the disclosed border router packet marking methods with IPsec. In addition, to the extent that Hamadeh ‘521 discloses anything with respect to IPsec, Hamadeh ‘838 fails to support any disclosure with

respect to IPsec. Thus, as discussed in more detail below, Hamadeh fails to teach or suggest those recitations directed to IPsec.

“a. transmitting a plurality of packets of differing size from a first IPsec node to a second IPsec node, each packet having an IP header wherein a ‘Don’t Fragment’ (DF) bit in a fragmentation flag field in the header for each packet of the plurality is set to a value that is arranged to prevent fragmentation of the packet en route.”

As discussed above, Hamadeh ‘838 says nothing at all about IPsec nodes, and clearly states that the disclosed BRPM methods are incompatible with IPsec. Thus, for this reason alone, Hamadeh fails to anticipate independent claim 11. In addition, Hamadeh ‘838 makes no mention of “transmitting a plurality of packets of differing size from a first IPsec node to a second IPsec node.” Further, Hamadeh fails to teach or suggest that “each packet [has] an IP header wherein a ‘Don’t Fragment’ (DF) bit in a fragmentation flag field in the header for each packet of the plurality is set to a value that is arranged to prevent fragmentation of the packet en route,” as recited in claim 18. To the extent that Hamadeh ‘521 teaches any of the identified recitations, such disclosure is clearly not supported by the provisional patent application, Hamadeh ‘838.

“b. determining a maximum packet size for avoiding fragmentation in transmissions from the first IPsec node to the second IPsec node based on at least one response from the second IPsec node to the plurality of packets transmitted by the first IPsec node.”

In addition, Hamadeh ‘838 says nothing at all about “determining a maximum packet size for avoiding fragmentation in transmissions from the first IPsec node to the second IPsec node,” as recited in claim 18. Where Hamadeh ‘838 mentions IPsec, Hamadeh merely states that the disclosed BRPM method is incompatible with IPsec. Accordingly, the 39-44 and 66-71 depending therefrom, should be reconsidered and withdrawn.

Accordingly, the Section 102 rejection of independent claim 18, as well as the rejection of claim 19 depending therefrom, should be reconsidered and withdrawn.

X. Independent Claims 26, 45, 53, 72, and 80 Are Patentable Over Hamadeh.

The Examiner alleged that Hamadeh ‘521 anticipates independent claims 26, 45, 53, 72, and 80 in paragraphs 125-148. (Final Office Action, pages 5-6, 7, 8-9, 10 and 12.) Although differing in scope, independent claims 26, 45, 53, 72, and 80 are patentable over Hamadeh for at least the reasons discussed above with respect to claim 18. Independent claims 26, 53, and 80 each substantially recites in part “receiving a plurality of packets of differing size from a first one of the IPsec nodes at a second one of the IPsec nodes, each of the packets having an IP header; wherein a ‘Don’t Fragment’ (DF) bit in a fragmentation flag field in the header for each packet is set to a value that is arranged to prevent fragmentation of the packet en route.” Independent claims 45 and 72 each substantially recites in part “transmitting a plurality of packets of differing size from a first one of the IPsec nodes to a second one of the IPsec nodes, each of the packets having an IP header, wherein a “Don’t Fragment” (DF) bit in a fragmentation flag field in the header for each packet of the plurality is set to a value that is arranged to prevent fragmentation of the packet en route.” As discussed above with respect to claim 18, Hamadeh ‘838 not only fails to teach or suggest the identified recitations, but explicitly teaches away from using the disclosed border router packet marking method with IPsec.

Accordingly, the Section 102 rejections of independent claims 26, 45, 53, 72, and 80, as well as the Section 102 rejections of their respective dependent claims, should be reconsidered and withdrawn.

XI. Independent Claim 20 Is Patentable Over Hamadeh.

“assembling the plurality of received IP datagrams based on identification information contained in an identification field and at least one other field of the header for each of the received IP datagrams.”

Independent claim 20 includes the identified recitations. The Examiner alleged that Hamadeh ‘521 anticipates independent claim 20 in paragraphs 125-148. (Final Office Action, pages 11-12.) However, Hamadeh ‘838 says nothing at all about “assembling the plurality of received IP datagrams based on identification information contained in an identification field and at least one other field of the header for each of the received IP datagrams.” With respect to

reassembling packets, Hamadeh states that “[w]hen a router decides to reassemble packet fragments, it will retrieve the border router marking information from the end of the last fragment and write it back to the 16-bit Identification field again.” (Hamadeh ‘838: page 12, lines 22-24.) Thus, to the extent that Hamadeh ‘521 includes additional disclosure regarding assembling datagrams, such disclosure is not supported by the provisional patent application, Hamadeh ‘838, and thus cannot be used as a Section 102 rejection.

“wherein the identification information for each received IP datagram does not include source address information, destination address information or protocol information for that received IP datagram.”

Independent claim 20 also includes the identified recitations. However, Hamadeh says nothing at all about how “the identification information for each received IP datagram does not include source address information, destination address information or protocol information for that received IP datagram.” Instead, Hamadeh merely states that “[t]he Identification field and the two unused bits of the ToS field can be ‘overloaded’, i.e. can be overwritten by the marking fragment and its ID.” (Hamadeh ‘521: ¶ 125.) In addition, Hamadeh ‘838 says nothing at all about the identified recitations. Thus, to the extent that Hamadeh ‘521 includes additional disclosure regarding the identified recitations, such disclosure is not supported by the provisional patent application, Hamadeh ‘838, and thus cannot be used as a Section 102 rejection.

Accordingly, the Section 102 rejection of independent claim 20, as well as the rejection of claim 21 depending therefrom, should be reconsidered and withdrawn.

XII. Independent Claims 47 and 74 Are Patentable Over Hamadeh.

The Examiner alleged that Hamadeh ‘521 also anticipates independent claims 47 and 74 in paragraphs 125-148. (Final Office Action, pages 7-8 and 11.) Although differing in scope, independent claims 47 and 74 are patentable over Hamadeh for at least the reasons discussed above with respect to claim 20. Independent claims 47 and 74 each substantially recites in part “assembling the plurality of received IP datagrams based on identification information contained in an identification field of the header for each received IP datagram and at least one other field of the header for each received IP datagram,” and “wherein the identification information for

each one of the received IP datagrams does not include source address information, destination address information or protocol information for that received IP datagram.”

As discussed above with respect to claim 20, Hamadch ‘838 says nothing at all about “assembling the plurality of received IP datagrams based on identification information contained in an identification field and at least one other field of the header for each of the received IP datagrams.” In addition, Hamadch says nothing at all about how “the identification information for each received IP datagram does not include source address information, destination address information or protocol information for that received IP datagram.” Instead, Hamadch merely states that “[t]he Identification field and the two unused bits of the ToS field can be ‘overloaded’, i.e. can be overwritten by the marking fragment and its ID.” (Hamadeh ‘521: ¶ 125.) To the extent that Hamadeh ‘521 includes additional disclosure regarding any of the identified recitations, such disclosure is not supported by the provisional patent application, Hamadeh ‘838, and thus cannot be used as a Section 102 rejection.

Accordingly, the Section 102 rejection of independent claims 47 and 74, as well as the rejections of claims 48 and 75 depending therefrom, should be reconsidered and withdrawn.

XIII. Independent Claims 22, 49, and 76 Are Patentable Over Hamadeh.

“extracting identification information from each of the plurality of the IP datagrams, the identification information for each of the IP datagrams comprising 16 bits of an identification field and at least one bit from at least one other field of the header for that IP datagram, the at least one bit not including source address information, destination address information or protocol information for the IP datagram.”

Independent claims 22, 49, and 76 each substantially include the identified recitations. The Examiner alleged that Hamadeh ‘521 anticipates independent claims 22, 49, and 76 in paragraphs 125-148. (Final Office Action, pages 5, 8, and 11-12.) However, Hamadeh merely teaches retrieving fragments of a border router’s IP address from a plurality of packets. Hamadeh fails to teach or suggest that “the identification information for each of the IP datagrams [comprises] 16 bits of an identification field and at least one bit from at least one other field of the header for that IP datagram,” as recited in claims 22, 49, and 76.

As previously discussed, Hamadeh is directed to separating a border router's IP address into fragments, and having the border router insert the fragmented address and an ID into a plurality of packets. Hamadeh states that "[t]he number of bits needed for storing both a fragment and its ID is at most $n + \lceil \log k \rceil$ where n is the fragment size and k is the total number of fragments." (Hamadeh '838: page 6, lines 24-26.) Hamadeh says nothing at all about "the identification information for each of the IP datagrams comprising 16 bits of an identification field and at least one bit from at least one other field of the header for that IP datagram." To the extent that Hamadeh '521 includes disclosure regarding any of the identified recitations, such disclosure is not supported by the provisional patent application, Hamadeh '838, and thus cannot be used as a Section 102 rejection.

Accordingly, the Section 102 rejection of independent claims 22, 49, and 76, as well as their associated dependent claims, should be reconsidered and withdrawn.

XIV. The Dependent Claims Are Patentable Over The Cited References.

The dependent claims are patentable based on their dependence from a patentable independent claim. However, each dependent claim further recites independently patentable subject matter. Applicant reserves the right to set forth further arguments supporting the patentability of the claims, including the separate patentability of the dependent claims not explicitly addressed herein, in future papers.

CONCLUSION

All rejections have been addressed. In view of the above, the presently pending claims are believed to be in condition for allowance. Accordingly, reconsideration and allowance are respectfully requested and the Examiner is respectfully requested to pass this application to issue. It is believed that any fees associated with the filing of this paper are identified in an accompanying transmittal. However, if any additional fees are required, they may be charged to Deposit Account 18-0013, under order number 65632-0210. To the extent necessary, a petition for extension of time under 37 C.F.R. 1.136(a) is hereby made, the fee for which should be charged against the aforementioned account.

Dated: May 18, 2009

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